Figure 1

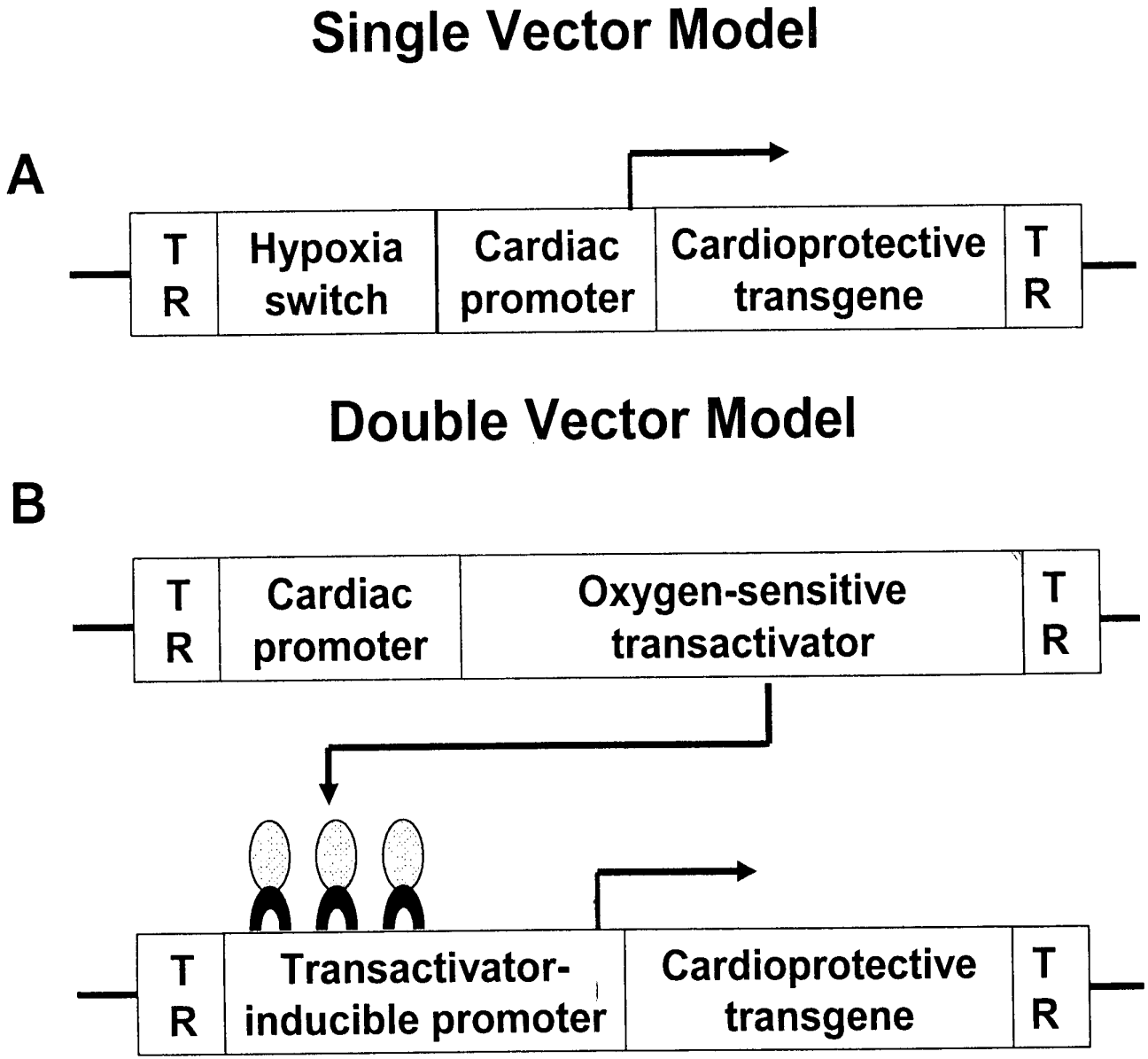

Single Vector Model
A
T R
Hypoxia switch
Cardiac promoter
Cardioprotective transgene
T R
Double Vector Model
B
T R
Cardiac promoter
Oxygen-sensitive transactivator
T R
T R
Transactivator-inducible promoter
Cardioprotective transgene
T R

Fig 2

MLC Redox Sensor Toggle (RST) System:

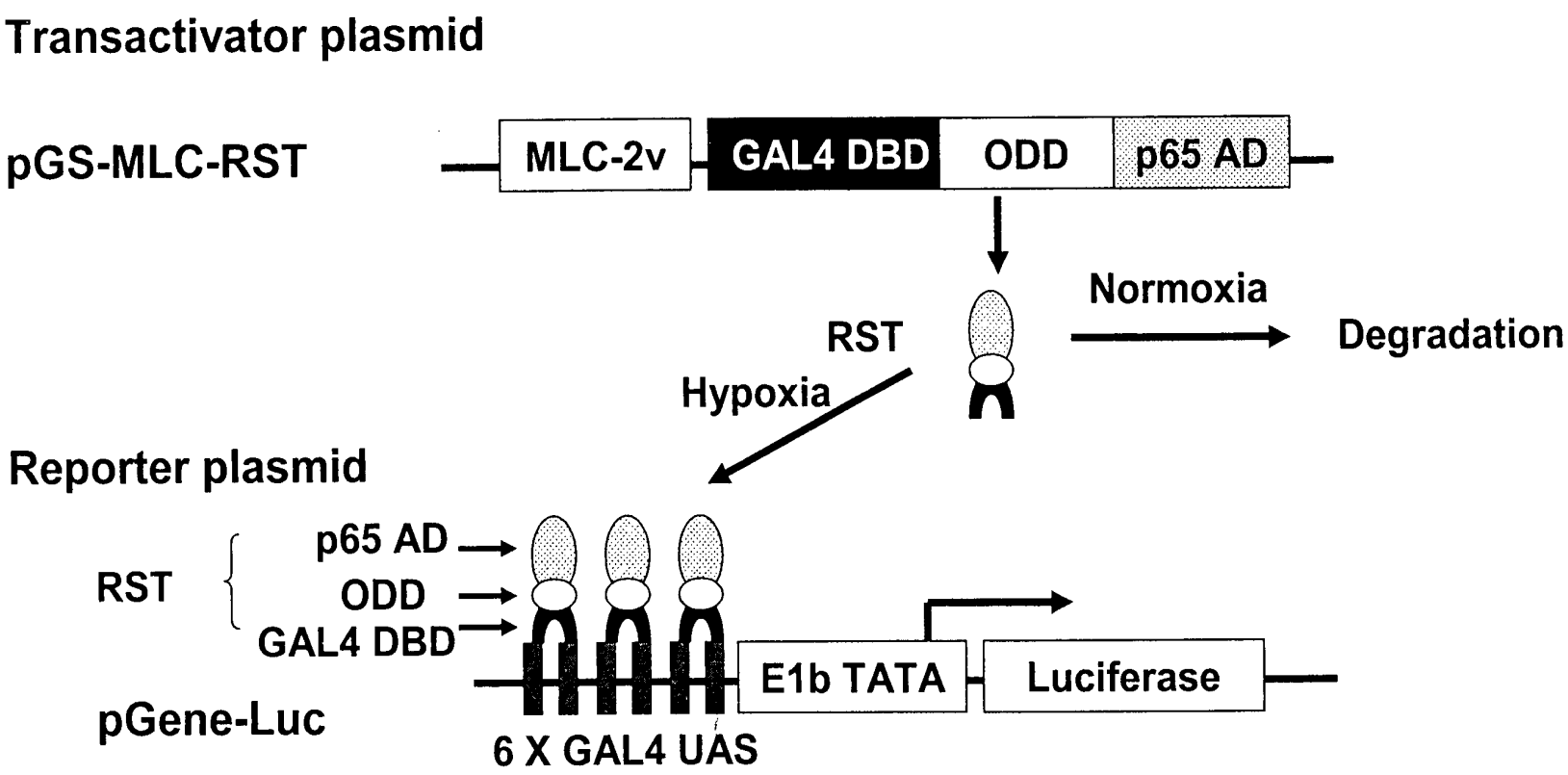


Fig 3

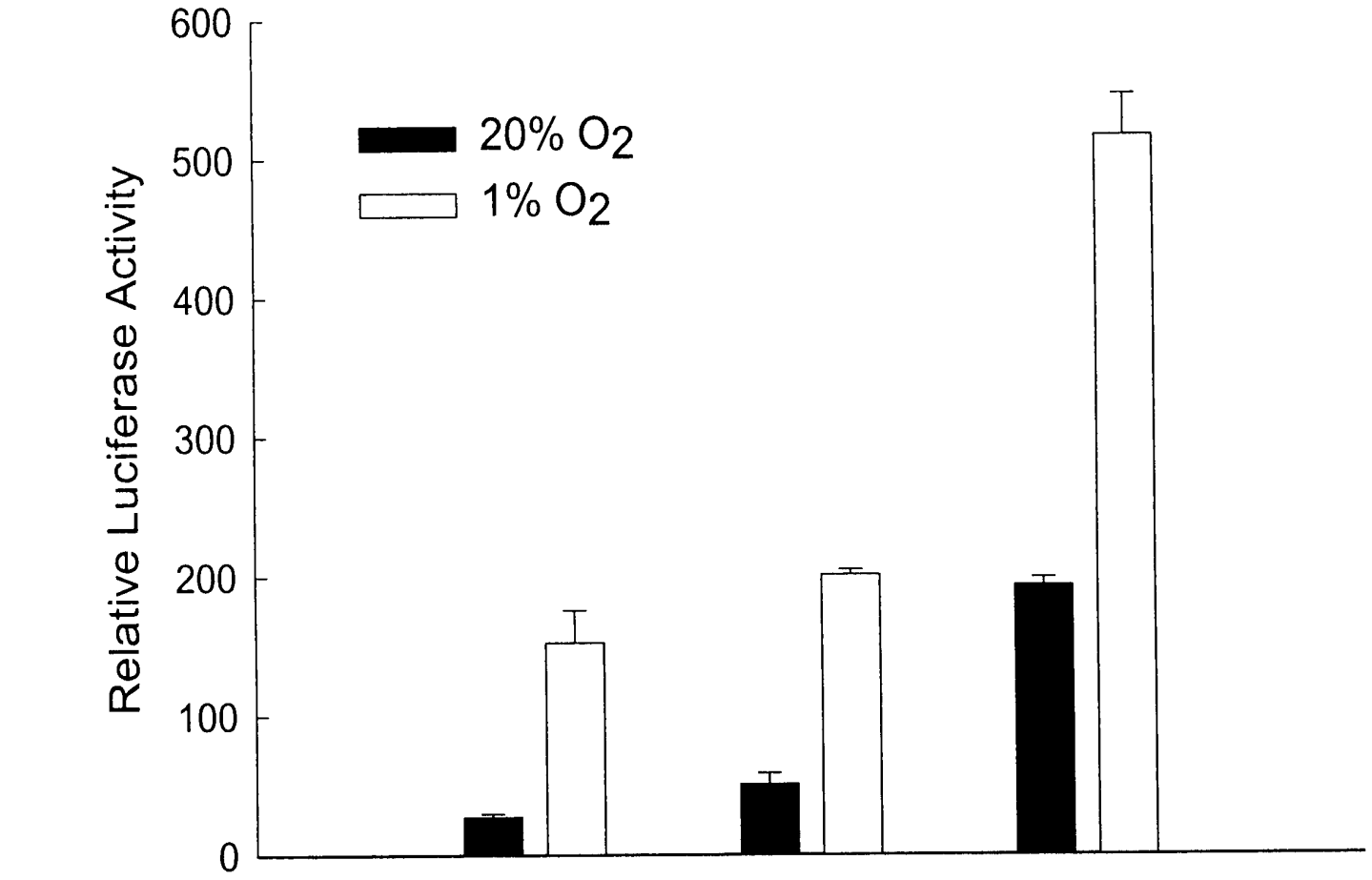

600
500
400
300
200
100
0
Relative Luciferase Activity
20% O2
1% O2
pGS-MLC-RST (ug) 1 2 4
pGene-Luc (0.5 ug) + + +
Induction 5.75 ± 1.38 4.05±0.66 2.67±0.18

Fig 4

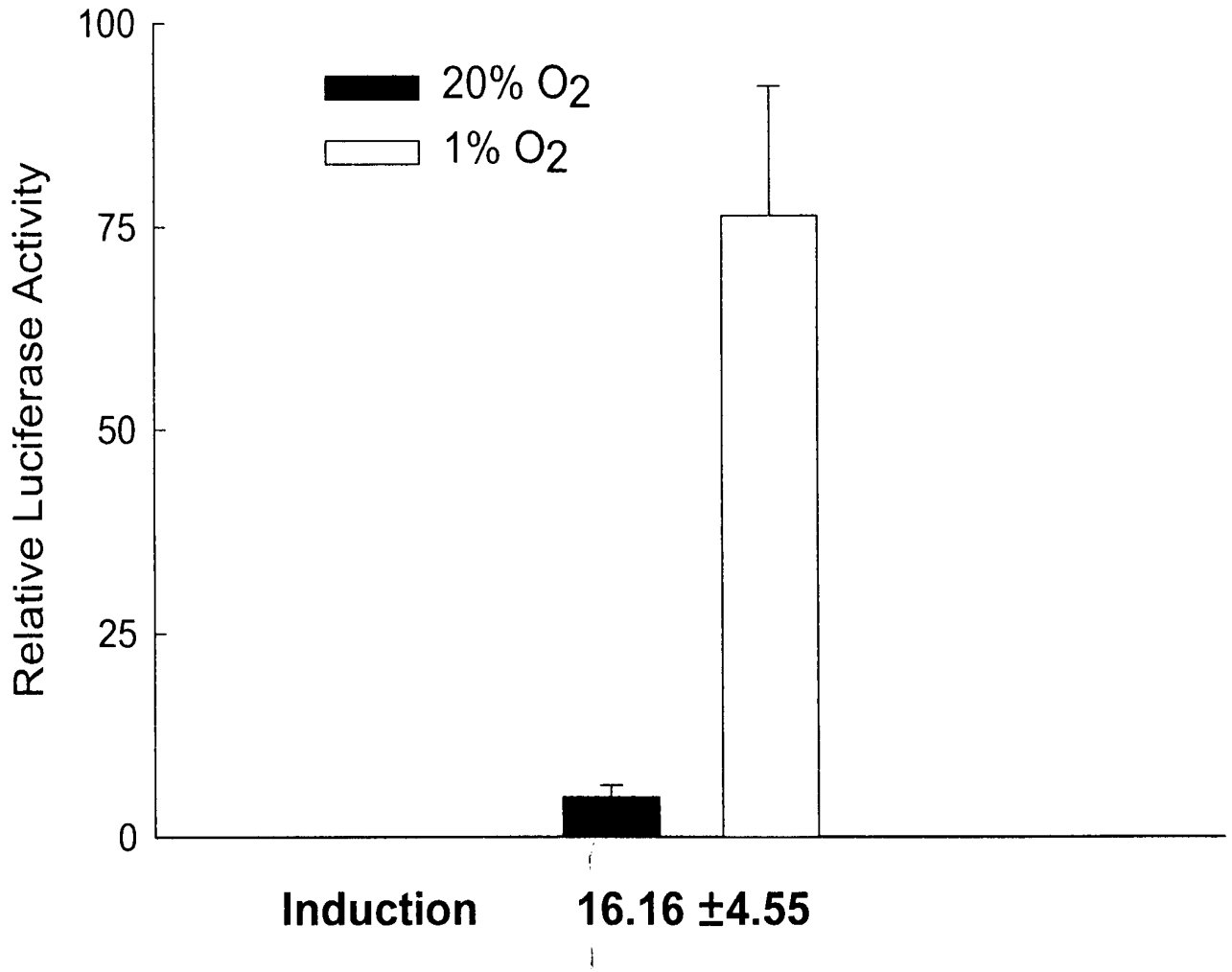

100
75
50
25
0
Relative Luciferase Activity
20% O2
1% O2
Induction
16.16 ±4.55

Fig 5

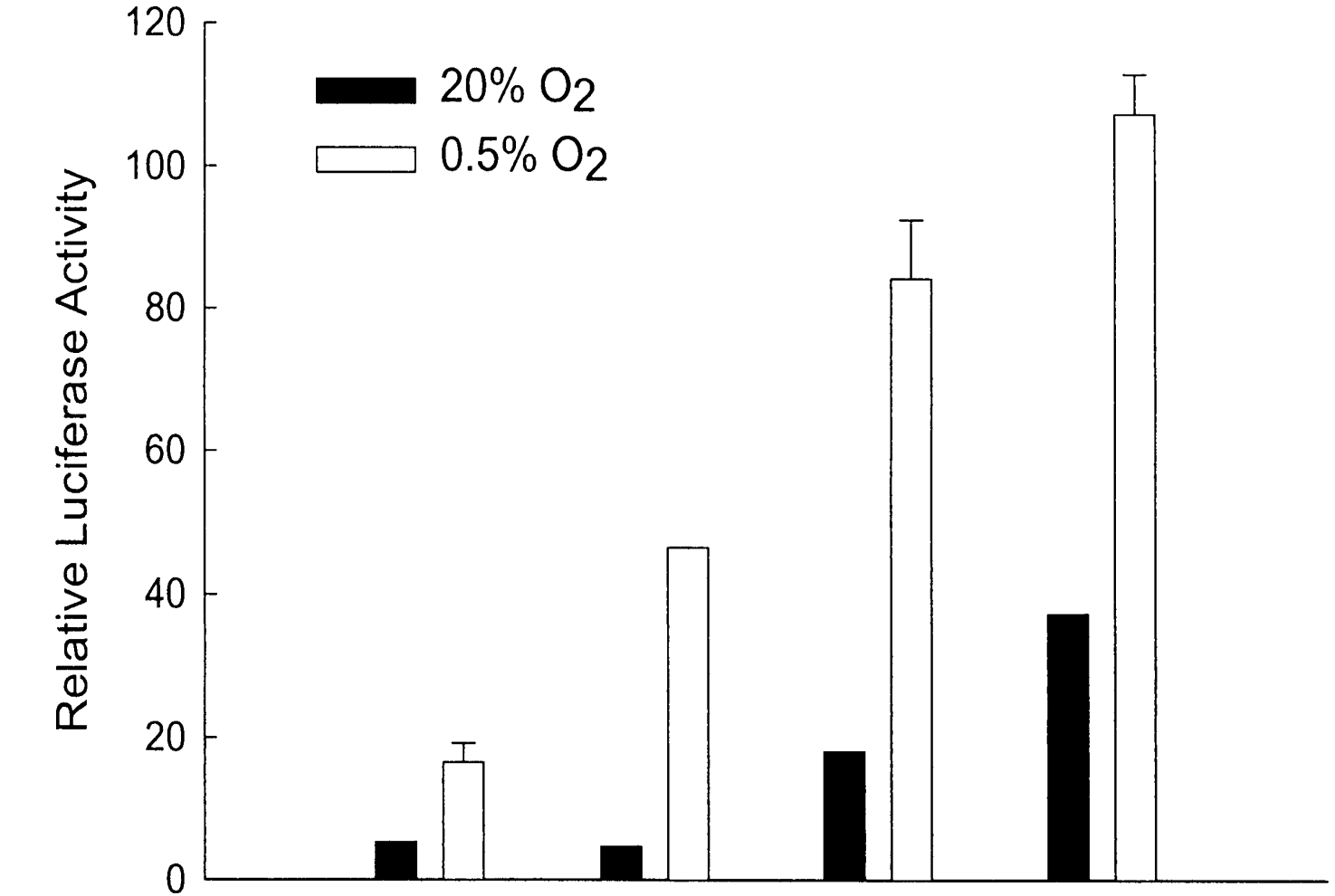

120
100
80
60
40
20
0
Relative Luciferase Activity
20% O2
0.5% O2
pGS-CMV-RST (ng)
10
100
500
1000
pGene-Luc(2 ug)
+
+
+
+
Induction
3.12 ± 0.51
10.02±0.00
4.66±0.46
2.87 ± 0.15

Fig 6

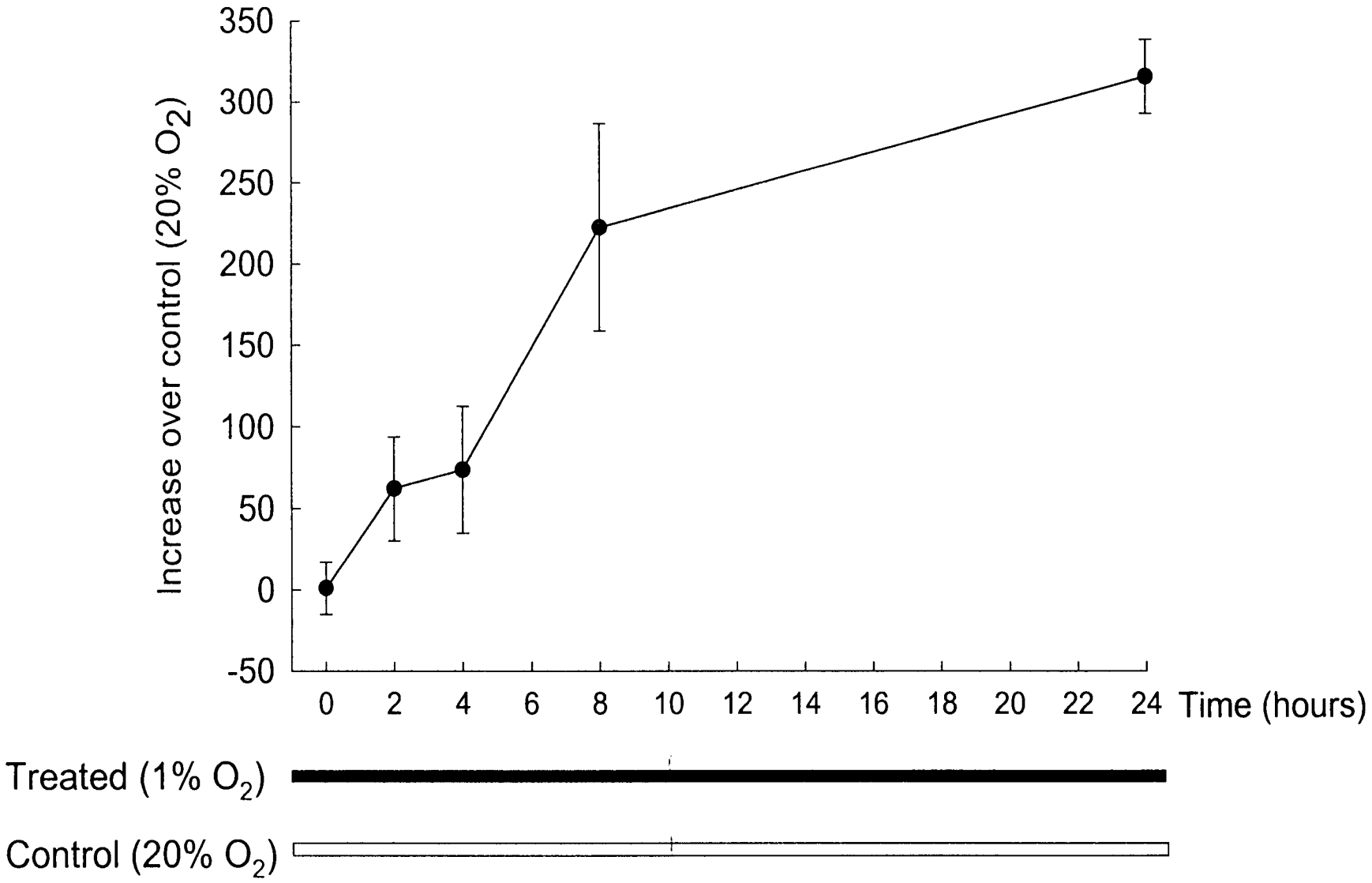

350
300
250
200
150
100
50
0
-50
Increase over control (20% O_2)
0
2
4
6
8
10
12
14
16
18
20
22
24
Time (hours)
Treated (1% O_2)
Control (20% O_2)

Fig 7

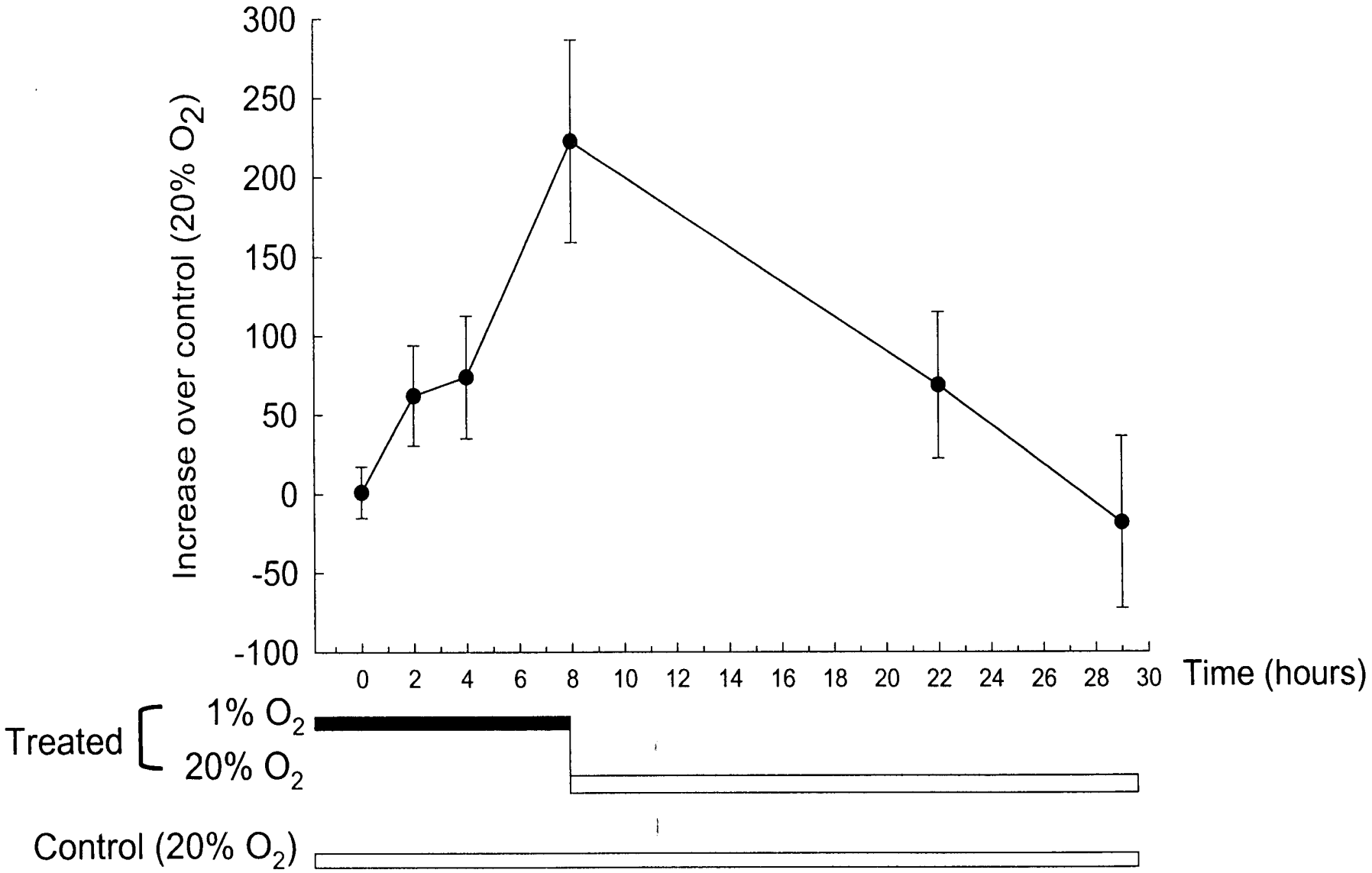

300
250
200
150
100
50
0
-50
-100
Increase over control (20% O2)
0 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30
Time (hours)
Treated
1% O2
20% O2
Control (20% O2)

Fig 8

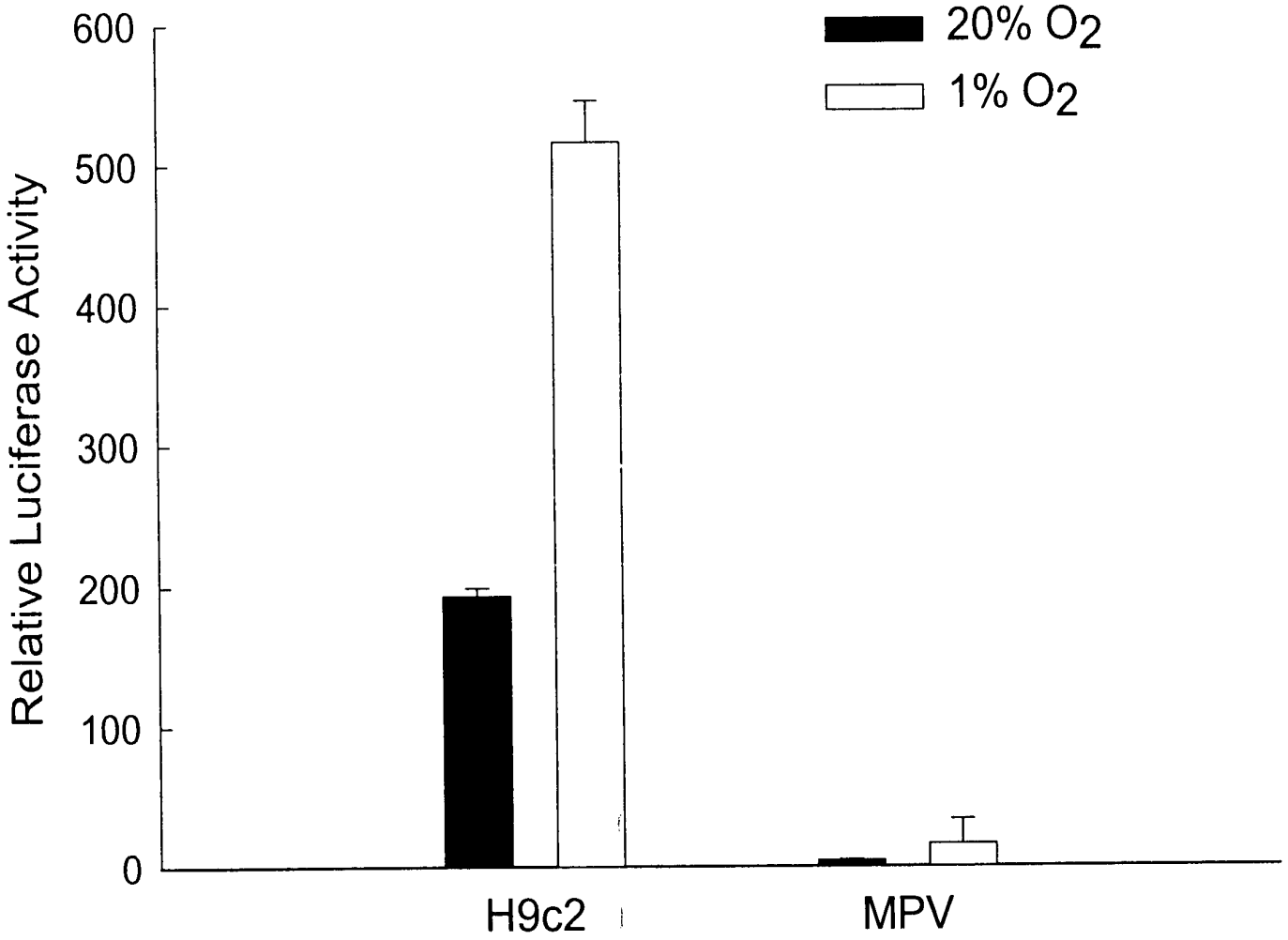

20% O2
1% O2
Relative Luciferase Activity
600
500
400
300
200
100
0
H9c2
MPV

Fig 9

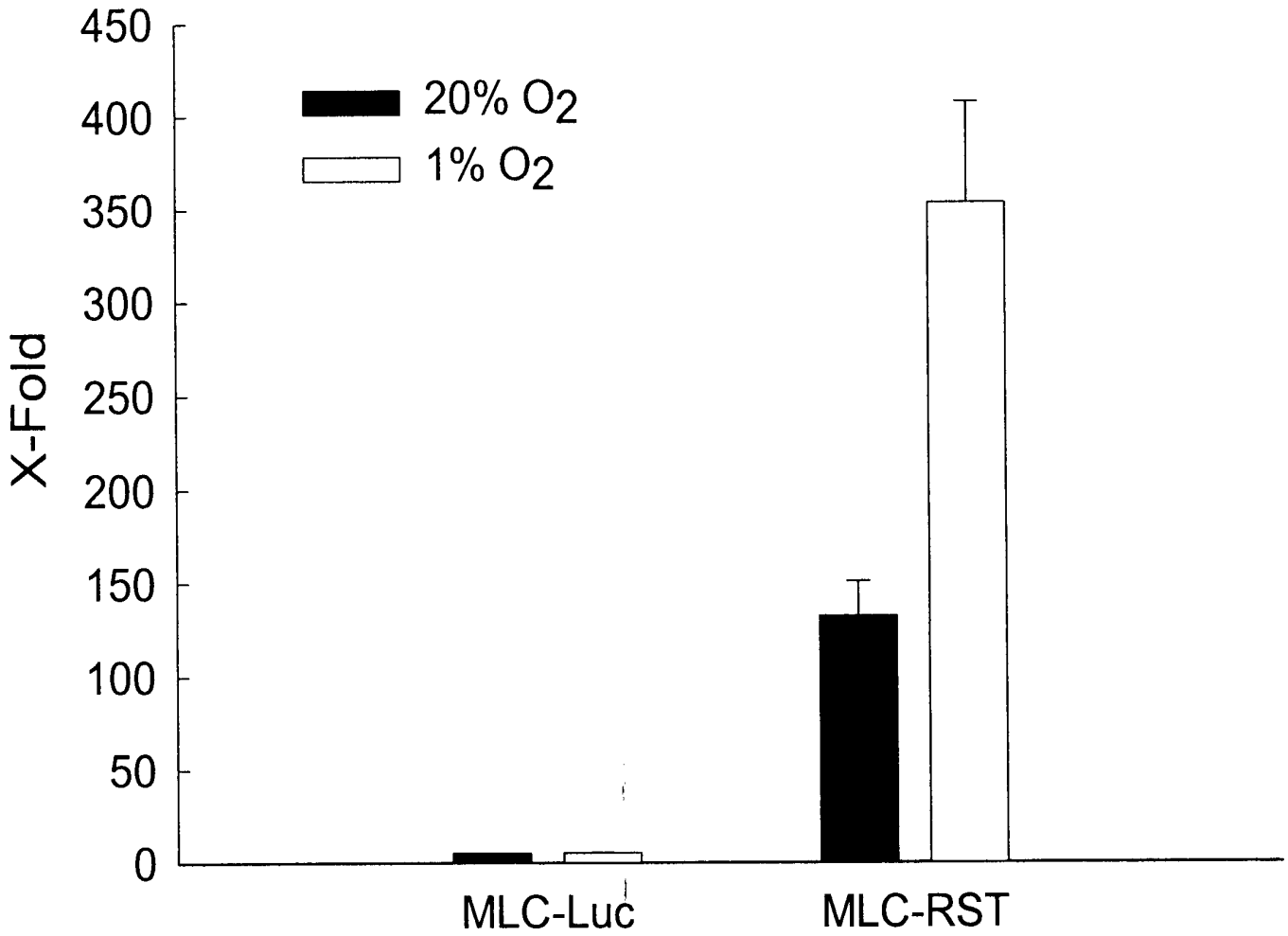
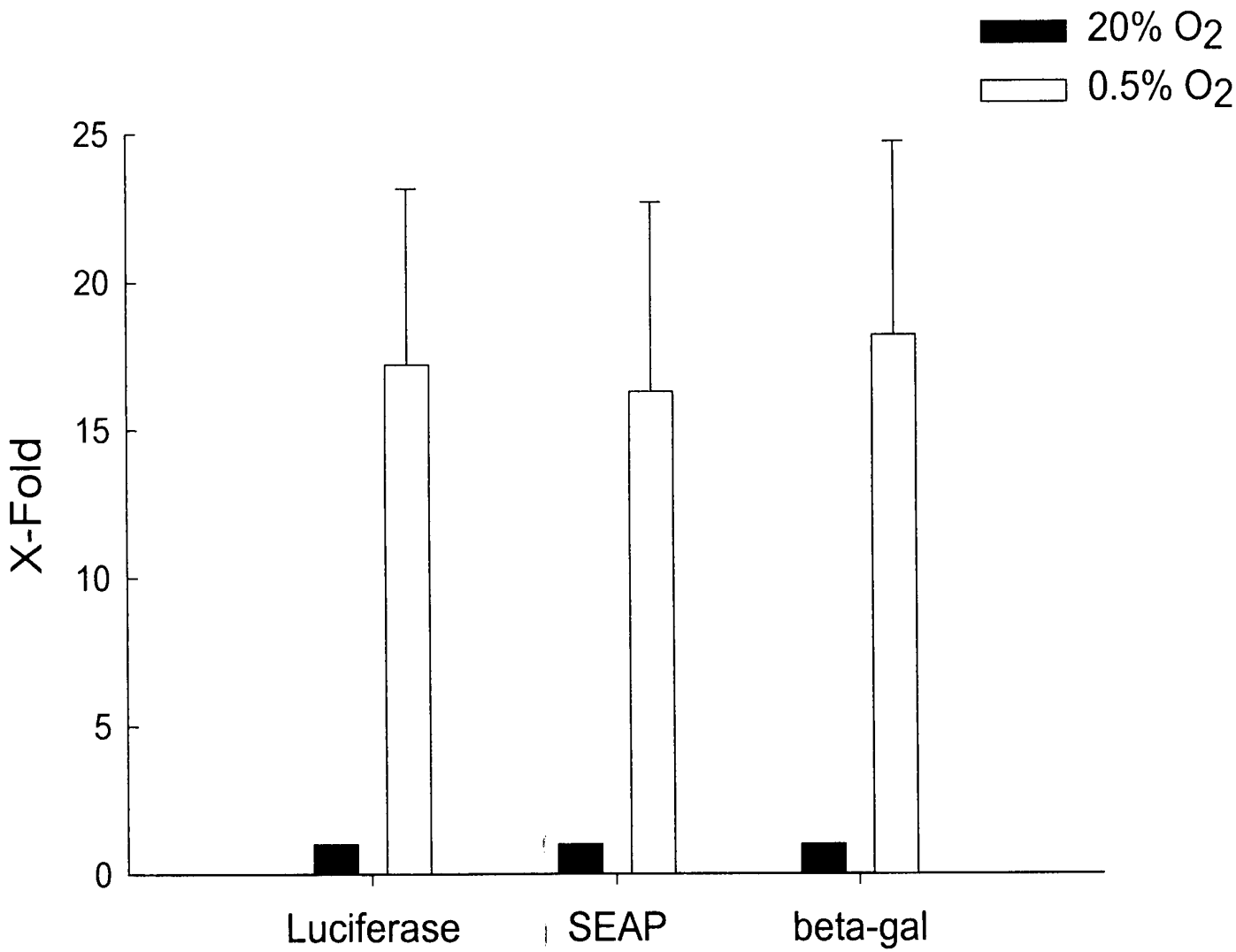

450
400
350
300
250
200
150
100
50
0
X-Fold
20% O2
1% O2
MLC-Luc
MLC-RST

Fig 10



	Luciferase	SEAP	beta-gal
Induction	**17.22 ±5.9**	**16.29±6.37**	**18.20±6.51**